Are all genital *Chlamydia trachomatis* infections pathogenic? A study in men

Chlamydia trachomatis infection of the genital tract is initially mild and most sufferers do not know they have the infection.[1] However, over a period of time untreated infections may be associated with considerable pathology.

During a recent prospective survey of 500 men presenting in this department we recorded the Gram stained microscopy results from urethral swabs. These were scored by the pathologist who had no knowledge of the patient. They were scored on a scale of 1–5, corresponding to 0, 1–4, 5–9, 10–14, and >15 polymorphonuclear leucocytes (PMNLs). The results were later correlated with the routine chlamydia ELISA testing. The results are given in table 1.

It can be seen that in the chlamydia positive men 34% do not have urethritis, defined as >5 PMNLs per high power microscopy field. Similarly, urethritis was found in 22% of men who were non-chlamydia, non-gonococcal (non-GC). This clearly confirms that chlamydia infection does exist in the absence of urethritis. Furthermore, this 34% did not correspond with asymptomatic infection; 55% were symptomatic and 45% asymptomatic. Likewise in those with urethritis, 57% were symptomatic and 43% asymptomatic. The most common symptom was discharge and the peak duration was 21 days. Of the total chlamydia positive group 16% had neither symptoms nor urethritis.

Is it therefore possible that not all chlamydia infection leads to pathology and morbidity? Perhaps the non-inflammatory serovars are not harmful and do not produce the pathology that others do.[2] Evidence does exist which suggests that different serovars do produce different pathology.[3 4]

Of the 22% of men who had non-chlamydia non-GC non-specific urethritis it seems highly likely that these will be due to *Mycoplasma genitalium*.[5] In future we intend to test for *Mycoplasma genitalium* and to compare the pathology that these two organisms produce.

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References

1 **Hicks D**. Complications of Chlamydia trachomatis infection in men. In: Moss T, ed. *International handbook of chlamydia*. UK: Euromed Communications Ltd, 2001.
2 **Taylor-Robinson D**, Munday PE. Chlamydia infections. In: Oriel JD, Waugh M, eds. *Anglo-Scandinavian Conference on sexually transmitted diseases*. Royal Society of Medicine Services International Congress and Symposium Series No 135. London: RSM, 1988:3–12.
3 **Antilla T**, Saikku P, Koskela P, *et al*. Serotypes of Chlamydia trachomatis and risk for development of cervical squamous cell carcinoma. *JAMA* 2001;**285**:47–51.
4 **Staffan P**, Sylvan E, Krogh GV, *et al*. Screening and genotyping of genital Chlamydia trachomatis in urine specimens from male and female clients of youth-health centers in Stockholm County. *Sex Transm Dis* 2002;**29**:379–81.
5 **Taylor-Robinson D**. Mycoplasm genitalium—an up-date. *Int J STD AIDS* 2002;**13**:145–51.

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Table 1 Microscopy

	Chlamydia positive, non-GC		Chlamydia negative, non-GC	
PMNLs	No		No	
0	9		284	
1–4	6	Total 34%	55	Total 78%
5–9	13		52	
10–14	12		21	
>15	4	Total 66%	21	Total 22%

Follow up of patients who have been recently sexually assaulted

Follow up rates for victims of sexual assault have traditionally been low, ranging from 10%[1] to 31%.[2] Rates improved if a follow up appointment was arranged at a genitourinary medicine clinic (GUM) clinic—50% of the 70% of patients for whom an appointment was made.[3]

FAMSAC (Forensic and Medical Sexual Assault Care) is a medical sexual assault service that has been integrated into an existing sexual health clinic for the past 19 months. A total of 114 sexual assault patients have used the service since November 2001(106 females, 8 males). Consent for follow up contact from the nurse coordinator of FAMSAC is sought at the initial consultation; this occurs in the first week after the report of sexual assault.

The following elements of care are addressed at the follow up visit:

- Follow up screening for sexually transmitted infections and hepatitis B vaccination (initiation or continuation)
- Follow up pregnancy testing as necessary (emergency contraception is given at the initial medical examination)
- Management and follow up of injuries as necessary
- Referral to counselling services (patients are offered immediate independent support at the time of medical examination)
- Discussion of legal matters (police action, victim's compensation, etc)
- Health promotion information and safety awareness strategies.

Patient follow up is the responsibility of the nurse coordinator with medical support as required, other duties include organising the preparation of legal reports, court appearances, and support of the medical officers ensuring continuity of care for the patient and minimal delay in the legal process.

To date we have contacted 97/114 (85%) of our patients. These rates are significantly higher than those reported by Herbert,[1] who reports a loss to follow up of 46% within 24–48 hours. This may be due in part to better access to telephones since her 1988–90 study—53% of our patients own a mobile telephone and 80% of patients gave a home contact telephone number. A total of 17 patients were unable to be contacted.

We offer a further opportunity for contact 3 months after the assault. To date 73 patients have been eligible; of these 59 (80%) have been contacted and 39 have attended (66%). Three patients who received HIV prophylaxis were offered a 6 month follow up appointment; all of those have attended.

The sexual health clinic appears to be an ideal venue for follow up of these patients, who appear to be at higher risk of acquiring a sexually transmitted infection.[4] The nurse coordinator model has enabled the follow up of patients at higher rates than previously reported.

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References

1 **Herbert CP**, Grams GD, Berkowitz J. Sexual assault tracking study: who gets lost to follow up? *Can Med Assoc J* 1992;**22**:727–31.
2 **Holmes MM**, Resnick HS, Frampton D. Follow-up of sexual assault victims. *Am J Obstet Gynecol* 1998;**179**:336–42.
3 **Bottomley CPEH**, Sadler T, Welch J. Integrated clinical service for sexual assault victims in a genitourinary setting. *Sex Transm Infect* 1999;**75**:116–19.
4 **Hooton JC**, Bowers A, Copass MK, *et al*. Sexually transmitted diseases in victims of rape. *N Engl J Med* 1990;**322**:713–6.

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Patients lost to follow up: experience of an HIV clinic

The National Strategy for Sexual Health and HIV aims to reduce the pool of undiagnosed HIV infection in the United Kingdom.[1] Potential benefits of earlier diagnosis include timely initiation of highly active antiretroviral therapy (HAART), prevention of complications of HIV, screening for STIs that are known to enhance HIV infectivity,[2] and psychological support. Patients may not realise these benefits if they are lost to follow up (LFU). Previous studies have found associations between frequent non-attendance (as distinct from LFU) and less severe illness,[3] drug addiction,[4] and patients' health beliefs.[5]

We studied the case notes of all surviving patients who had enrolled in our HIV clinic within a 15 month period but had not received medical care for 12 months or more. Patients were excluded if they had been transferred to other centres or if the case notes were unavailable. For each case, one control was matched for date of first attendance. Data including demographics, virological and immunological markers, antiretroviral therapy, and psychological and social factors were collected from the notes using a standardised proforma.

Ninety four cases were found. LFU patients were younger than controls (table 1), with a trend towards more patients being born outside the United Kingdom. Cases were about half as likely to be on HAART than controls (RR 0.46, 95% CI 0.32 to 0.66). This

Table 1 Comparison of characteristics of patients lost to follow up ("cases") with matched controls. Statistical analysis by Mann-Whitney test or χ^2 test

	Cases (%)	Controls (%)	p Value
Median age (years)	34	37	0.0068
Median CD4 (cells $\times 10^6$/l)	415	470	0.49
Median $\log_{10}$ VL in patients off therapy	4.03	3.96	0.48
Ethnicity:			
Black African	17 (18.1)	18 (19.1)	0.62
White	58 (61.7)	62 (66.0)	
Other	12 (12.8)	8 (8.5)	
Not known	7 (7.4)	6 (6.4)	
Born in UK	34 (36.2)	40 (42.6)	0.072
Transmission by sex between men	63 (67.0)	64 (68.1)	0.70
CDC stage			
A	58 (61.7)	48 (51.1)	
B	22 (23.4)	28 (29.8)	
C	14 (14.9)	18 (19.1)	0.37
On HAART at last visit	26 (27.7)	57 (60.6)	<0.001
Attended another centre before the centre of this study	31 (33.0)	20 (21.3)	0.104
General practitioner details documented	43 (45.7)	38 (40.4)	0.38
Written correspondence with GP	20 (21.3)	15 (16.0)	0.857

association was true regardless of disease stage. Numbers were too small to analyse any association between LFU and poor adherence to HAART. There were no statistically significant differences in sex, ethnicity, disease stage, or surrogate markers. The number of general practitioners with whom communication was maintained was equally low in both groups.

The number of cases with a history of psychiatric illness, substance abuse, deliberate self harm, or use of counselling or psychiatric services was not significantly different from controls. Further data provided by CDSC showed that at least 29 cases (31%) had attended another clinic for follow up, without correspondence being made between centres. These included only eight of 26 (30%) cases on HAART and eight of 22 (36%) cases with CDC stage C or CD4 count under 200 cells $\times 10^6$/l. (Soundex code and date of birth were used for matching records without compromising patient identity, and subsequent treatment locations were not specified.)

This study highlights that patients who are LFU include those at all stages of disease and are not necessarily those with a lack of clinical need. It is of interest that the association between not being on HAART and being LFU is independent of clinical stage. The patients who discontinued care from our centre were a diverse group in terms of illness, ethnicity, and transmission category, typical of the clinic population as a whole.

In a patient who is symptom free and not on HAART, one might argue that a year without specialist follow up is of no clinical importance. Such patients might be better managed in primary care or in a setting which focuses less on the patient's disease state than on their wellbeing. An appropriately designed study might further elucidate reasons that lead patients to default from follow up. Interventions need to be in place to prevent loss of follow up of patients who are at high risk of disease progression or who are on HAART.

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Contributors

LH developed the study, retrieved and analyzed the data, and co-wrote the text; SE co-wrote the text; DM conceived the study and provided comments on the text; KS provided further data from CDSC.

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References

1 **Department of Health**. *National strategy for sexual health and HIV*. London: DoH, 2001.
2 **Fleming DT**, Wasserheit JN. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Sex Transm Infect* 1999;**75**:3–17.
3 **Catz SL**, McClure JB, Jones GN, *et al*. Predictors of outpatient medical appointment attendance among persons with HIV. *AIDS Care* 1999;**11**:361–73.
4 **Herrera B**, Gato A, Gaspar G. [Follow-up of the patient with HIV infection: a hospital task?] *Aten Primaria* 1992;**9**:251–4.
5 **Cooper A**, Lloyd G, Weinman J, *et al*. Why patients do not attend cardiac rehabilitation: role of intentions and illness beliefs. *Heart* 1999;**82**:234–6.

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Interactive continuing medical education (CME) and its influence on the working practices of genitourinary clinicians

Didactic lectures are the traditional vehicle used by the MSSVD for updating clinicians on developments in the specialty, but there is mounting evidence that this sort of educational format is unlikely to change clinical practice, whereas a format which more actively involves participants can produce measurable changes.[1] The MSSVD decided to formally assess the impact of combining the lecture format with an interactive approach at one of its national update meetings. The subject under review at this meeting was human papillomavirus (HPV) infection. Specialists attending were asked to vote electronically on a combination of knowledge base and treatment strategy questions. They were then presented with information on the correct answers to the questions, and on currently preferred treatments. Feedback questionnaires invited comparison with the usual didactic approach. Participants were also asked whether their clinical practice would change as a result of the meeting. Seventy MSSVD members signed for CME, and 43 returned feedback questionnaires at the end of the event. A small majority of 51% preferred the new format to the usual didactic format, while a minority of 21% preferred the traditional approach. Despite only a small majority preferring the interactive over the customary didactic lecture format, a clear majority of respondents, 70%, felt that the interactive format was better able to maintain their concentration and interest, and 60% felt the new format was more likely to induce reflection and stimulate change. To our surprise, 74% of respondents planned to make some change in clinical practice as a result of attending the event. Three months later attendees were balloted by post to ascertain whether a change had in fact occurred. The response rate was a disappointing 37%, but of this group 30% reported having already changed their practice, and a further 27% still planned to do so as soon as circumstances permitted. A large proportion of respondents stated explicitly what changes had been made. The major influence was on a cessation in the use of podophyllin, and an increased use of the topical wart treatments imiquimod and podophyllotoxin.

The incorporation of hand held electronic response units to facilitate audience participation in educational events requires considerably more preparation on the part of the organiser than would a conventional lecture. The data from this small study suggest that in terms of outcome the effort expended is worthwhile. A variety of factors make the interactive technology which was employed here powerful: firstly, each participant communicates directly not only with the lecturer, but also anonymously with all his peers; secondly, the event has to be formatted in such a way as to directly engage participants by requiring them answer clinically related questions; and thirdly, the organiser has to focus to a higher degree than normal on how everything that is said will be perceived.

We have been encouraged by the outcome of this event, and we believe that clinicians would benefit from increased utilisation of this interactive educational method.

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Reference

1 **Davis D**, O'Brien MAT, Freemantle N, *et al*. Impact of formal continuing medical education. Do conferences, workshops and other traditional CME activities change physician behavior or health care outcomes? *JAMA* 1999;**282**:867–74.

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